

008806368    \*\*Image available\*\*

WPI Acc No: 1991-310380/199142

Spray atomising device - has non-return valves and pressure chamber to which metered quantities of drug are successively presented

Patent Assignee: DMW TECHNOLOGY LTD (DMWT-N); DUNNE MILLER WESTON LTD (DUNN-N); BOEHRINGER INGELHEIM INT GMBH (BOEH ); BOEHRINGER INGELHEIM KG (BOEH ); DUNNE MILLER WESTON (DUNN-N)

Inventor: DUNNE S T; KING A W; WESTON T E; DUNNE S; WESTON T

Number of Countries: 047    Number of Patents: 039

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9114468	A	19911003				199142    B
AU 9175484	A	19911021				199203
CS 9100750	A	19911112				199205
ZA 9102057	A	19911224				199206
FI 9204216	A	19920921	WO 91GB433	A	19910321	199251
			FI 924216	A	19920921	
GB 2256805	A	19921223	WO 91GB433	A	19910321	199252
			GB 9215398	A	19920720	
EP 521061	A1	19930107	EP 91906552	A	19910321	199301
			WO 91GB433	A	19910321	
CN 1061362	A	19920527	CN 91102794	A	19910321	199306
NO 9203647	A	19921109	WO 91GB433	A	19910321	199306
			NO 923647	A	19920918	



PT 97098	A	19930430	PT 97098	A	19910321	199321
BR 9106249	A	19931109	BR 916249	A	19910321	199349
			WO 91GB433	A	19910321	
JP 5509241	W	19931222	JP 91506336	A	19910321	199405
			WO 91GB433	A	19910321	
GB 2256805	B	19940406	WO 91GB433	A	19910321	199411
			GB 9215398	A	19920720	
NZ 237502	A	19940225	NZ 237502	A	19910319	199411
AU 650870	B	19940707	AU 9175484	A	19910321	199431
HU 66175	T	19940928	WO 91GB433	A	19910321	199439
			HU 922985	A	19910321	
EP 627230	A2	19941207	EP 91906552	A	19910321	199502
			EP 94112017	A	19910321	
IE 62626	B	19950222	IE 91929	A	19910320	199519
IL 97619	A	19950526	IL 97619	A	19910320	199536
EP 627230	A3	19950301	EP 94112017	A	19910321	199541
TW 253846	A	19950811	TW 93106336	A	19910618	199542
US 5497944	A	19960312	WO 91GB433	A	19910321	199616
			US 92938174	A	19921119	
US 5662271	A	19970902	WO 91GB433	A	19910321	199741
			US 92938174	A	19921119	
			US 95459458	A	19950602	
CA 2078683	C	19971007	CA 2078683	A	19910321	199801
EP 521061	B1	19971210	EP 91906552	A	19910321	199803
			WO 91GB433	A	19910321	
			EP 94112017	A	19910321	
DE 69128419	E	19980122	DE 628419	A	19910321	199809
			EP 91906552	A	19910321	
			WO 91GB433	A	19910321	
ES 2109943	T3	19980201	EP 91906552	A	19910321	199811
SG 45171	A1	19980116	SG 96929	A	19900321	199811
CZ 283820	B6	19980617	CS 91750	A	19910320	199830
NO 303206	B1	19980615	WO 91GB433	A	19910321	199830
			NO 923647	A	19920918	
RU 2104048	C1	19980210	SU 5053235	A	19910321	199838
			WO 91GB433	A	19910321	
CN 1199009	A	19981118	CN 91102794	A	19910321	199914
			CN 97122300	A	19910321	
<u>HU 216121</u>	B	19990428	WO 91GB433	A	19910321	199924
			HU 922985	A	19910321	
SK 280225	B6	19991008	CS 91750	A	19910320	199952
FI 104311	B1	19991231	WO 91GB433	A	19910321	200007
			FI 924216	A	19920921	
EP 627230	B1	20000202	EP 91906552	A	19910321	200011
			EP 94112017	A	19910321	
KR 139652	B1	19980701	WO 91GB433	A	19910321	200017
			KR 92702249	A	19920918	
DE 69131966	E	20000309	DE 631966	A	19910321	200019
			EP 94112017	A	19910321	
ES 2141786	T3	20000401	EP 94112017	A	19910321	200023

Priority Applications (No Type Date): GB 9023767 A 19901101; GB 906340 A 19900321

Cited Patents: 01Jnl.Ref; EP 111875; GB 1239855; GB 2209564; SU 992070; No-SR.Pub; EP 86144; WO 9116993

#### Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 9114468 A

Designated States (National): AT AU BB BG CA CH DE DK ES FI GB HU JP KP

KR LK LU MC MG MW NL NO PL RO SD SE SU US

Designated States (Regional): AT BE CH DE DK ES FR GB GR IT LU NL OA SE

FI 104311 B1 A61M-011/00 Previous Publ. patent FI 9204216

EP 627230 B1 E B05B-011/00 Div ex application EP 91906552

Div ex patent EP 521061

Designated States (Regional): AT BE CH DE DK ES FR GB GR IT LI LU NL SE			
DE 69131966	E	B05B-011/00	Based on patent EP 627230
ES 2141786	T3	B05B-011/00	Based on patent EP 627230
GB 2256805	A	45 A61M-011/00	Based on patent WO 9114468
EP 521061	A1 E	45 A61M-011/00	Based on patent WO 9114468
Designated States (Regional): AT BE CH DE DK ES FR GB GR IT LI LU NL SE			
BR 9106249	A	A61M-011/00	Based on patent WO 9114468
JP 5509241	W	A61M-011/00	Based on patent WO 9114468
GB 2256805	B	A61M-011/00	Based on patent WO 9114468
AU 650870	B	A61M-011/00	Previous Publ. patent AU 9175484
			Based on patent WO 9114468
HU 66175	T	A61M-011/00	Based on patent WO 9114468
EP 627230	A2 E	20 A61M-015/00	Related to application EP 91906552
Designated States (Regional): AT BE CH DE DK ES FR GB GR IT LI LU NL SE			
EP 627230	A3		Related to patent EP 521061
US 5497944	A	21 A61M-011/00	Based on patent WO 9114468
US 5662271	A	19 A61M-011/00	Cont of application WO 91GB433
			Cont of application US 92938174
			Cont of patent US 5497944
EP 521061	B1 E	21 A61M-011/00	Related to application EP 94112017
			Related to patent EP 627230
			Based on patent WO 9114468
Designated States (Regional): AT BE CH DE DK ES FR GB GR IT LI LU NL SE			
DE 69128419	E	A61M-011/00	Based on patent EP 521061
			Based on patent WO 9114468
ES 2109943	T3	A61M-011/00	Based on patent EP 521061
CZ 283820	B6	B05B-011/00	Previous Publ. patent CS 9100750
NO 303206	B1	A61M-011/00	Previous Publ. patent NO 9203647
CN 1199009	A	B65D-083/16	Div ex application CN 91102794
✓ HU 216121	B	A61M-011/00	Previous Publ. patent HU 66175
			Based on patent WO 9114468
			Previous Publ. patent CS 9100750
SK 280225	B6	A61M-011/00	
KR 139652	B1	A61M-011/00	
FI 9204216	A	B05B-000/00	
CN 1061362	A	B05B-011/02	
NO 9203647	A	A61M-000/00	
PT 97098	A	A61M-015/00	
NZ 237502	A	A61M-011/00	
IE 62626	B	B05B-011/00	
IL 97619	A	B05B-011/00	
TW 253846	A	B05B-015/00	
CA 2078683	C	A61M-011/00	
SG 45171	A1	A61M-011/00	
RU 2104048	C1	A61M-011/00	

Abstract (Basic): WO 9114468 A

The device comprises a piston (3) which is mounted in a cavity (2) within a body (1), and is urged by a pre-loaded spring (6) into a reduced cross-section pressure chamber (4). The piston (3) may be loaded by means of an actuating rod (31) having a handle (32), and may be latched in a loaded position by a latch (33). A liquid drug (e.g. in aqueous solution) is contained in a collapsible bag (10).

Metered quantities of the drug are successively presented in the pressure chamber (4), and then subjected to a sudden and great increase in pressure, to eject the liquid drug through an atomising head (22), to reduce it to a fine atomised spray of small mean particle size- for example, less than 30 micrometres. Non-return valves (23) and (25) control the flow of liquid through the device.

USE/ADVANTAGE - A metered dose inhaler. The sudden pressure pulse is caused by releasing the spring loaded piston (3), upon depressing an actuating button (35) connected to the latch (33). (45pp Dwg.No.---1/8)

Abstract (Equivalent): EP 521061 B

The device comprises a piston (3) which is mounted in a cavity (2) within a body (1), and is urged by a pre-loaded spring (6) into a

reduced cross-section pressure chamber (4). The piston (3) may be loaded by means of an actuating rod (31) having a handle (32), and may be latched in a loaded position by a latch (33). A liquid drug (e.g. in aqueous solution) is contained in a collapsible bag(10).

Metered quantities of the drug are successively presented in the pressure chamber (4), and then subjected to a sudden and great increase in pressure, to eject the liquid drug through an atomising head (22), to reduce it to a fine atomised spray of small mean particle size- for example, less than 30 micrometres . Non-return valves 23) and 25) control the flow of liquid through the device.

USE/ADAVNTAGE - A metered dose inhaler. The sudden pressure pulse is caused by releasing the spring loaded piston (3), upon depressing an actuating button (35) connected to the latch (33). (45pp Dwg.No.---1/8)

Dwg.1/8

Abstract (Equivalent): GB 2256805 B

A device for dispensing a metered amount of a fluid as a spray of droplets by discharging the metered amount of the fluid under pressure through an atomising means, characterised in that the apparatus comprises: a chamber for containing a metered quantity of a fluid at a first lower pressure; an energy storage means for retaining and applying a predetermined amount of energy to the chamber so as to subject the metered quantity of fluid to a pre-determined increase in pressure from said first lower pressure to a second higher pressure of 50 bar or more so as to discharge said metered amount of fluid from said chamber; and atomising means for atomising the fluid from said chamber comprising an outlet aperture having an hydraulic diameter of 100 micrometres or less.

Dwg.1/1

Abstract (Equivalent): US 5662271 A

A device for dispensing fluid as a spray of droplets, comprising:  
a chamber for containing fluid at a first pressure;  
a piston for pressurizing and discharging the fluid in said chamber, wherein said piston is reciprocable between a loaded position and a discharge position;  
resilient biasing means for urging said piston from the loaded position to the discharge position thereby subjecting the fluid in said chamber to a predetermined increase in pressure from said first pressure to a second pressure of at least 50 bar to permit discharge of the fluid from said chamber at said second pressure, wherein said resilient biasing means is in a loaded state when said piston is in the loaded position;

latching means for holding said resilient biasing means in the loaded state;

actuating means for releasing said latching means, wherein release of said latching means releases said resilient biasing means from the loaded state and said resilient biasing means urges said piston from the loaded position to the discharge position thereby initiating discharge of the fluid from said chamber at said second pressure; and  
atomising means for atomising the fluid discharged from said chamber.

Dwg.3/8

US 5497944 A

A device for dispensing a metered quantity of fluid as a spray of droplets by discharging the metered quantity of fluid under pressure through an atomising means, comprising:

a chamber for containing said metered quantity of fluid at a first pressure;

an energy storage means for retaining and applying a predetermined amount of energy to said chamber so as to subject said metered quantity of fluid to a predetermined increase in pressure from said first pressure to a second pressure of at least 50 bar to permit discharge of said metered quantity of fluid from said chamber at said second pressure; and

atomising means for atomising said fluid discharged from said

chamber, said atomising means comprising an outlet aperture having a hydraulic diameter of 100 micrometers or less, whereby said fluid is atomized into droplets having a mean size suitable for inhalation into the lungs.

Dwg.3/8

(11) A



(19) Országkód

HU



MAGYAR  
KÖZTÁRSASÁG

MAGYAR  
SZABADALMI  
HIVATAL

## SZABADALMI LEÍRÁS

(21) A bejelentés ügyszám: P 92 02985  
(22) A bejelentés napja: 1991. 03. 21.  
(30) Elsőbbségi adatok:  
9006340.5 1990. 03. 21. GB  
9023767.8 1990. 11. 01. GB  
(86) Nemzetközi bejelentési szám: PCT/CB 91/00433  
(87) Nemzetközi közzétételi szám: WO 91/14468

(40) A közzététel napja: 1994. 09. 28.  
(45) A megadás meghirdetésének a dátuma a Szabadalmi  
Közlönyben: 1999. 04. 28.

(11) Lajstromszám:

216 121 B

(51) Int. Cl.<sup>6</sup>

A 61 M 11/00  
B 05 B 11/00

(72) Feltalálók:

Durme, Stephen Terence, Ipswich, Suffolk (GB)  
King, Anthony Wayne, Ipswich, Suffolk (GB)  
Weston, Terence Edward, Woodbridge, Suffolk  
(GB)

(73) Szabadalmaz:

Boehringer Ingelheim International GmbH,  
Ingelheim/Rhein (DE)

(74) Képvisező:

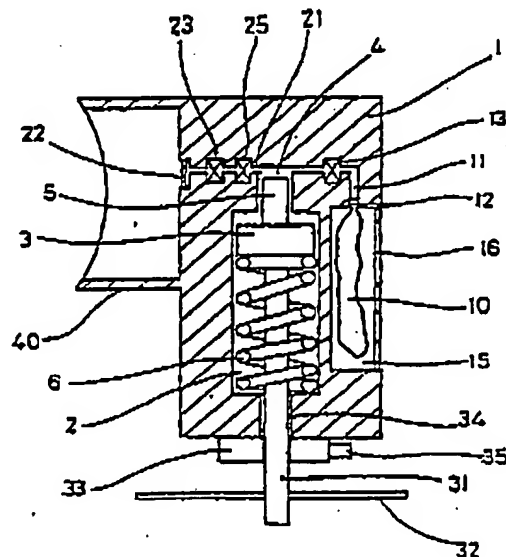
S. B. C. & K. Budapesti Nemzetközi Szabadalmi  
Iroda, Budapest

(54)

### Inhalációs készülék és eljárás porlasztásra

#### KIVONAT

A találmány tárgya inhalációs készülék, adagolt folyadék-  
mennyiség nyomás alatti porlasztására, főleg tüdőbe juttatandó permatesszpek porlasztására egy hordozható  
porlasztó készülékkel, amely egy porlasztó fejet, az ada-  
golt folyadékmennyiséget befogadó nyomkamrát, és az  
adagolt folyadékmennyiséget a nyomkamrába juttató  
valamint a folyadékmennyiségnek a nyomkamrából  
val ki bocsátására szolgáló eszközzel, továbbá a nyom-  
kamrához hozzárendelt energiatároló foglal magá-  
ban, oly módon kialakítva, hogy a nyomkamra (4) nyom-  
mása az energiatároló útján szakaszosan változtatható és  
a nyomkamrához (4) egy nyomásfokozó van hozzáren-  
delve, ahol a nyomásfokozó csatlakoztatott elemmel (35) és  
reteszlelemmel (33) van ellátva, és az adagolandó folya-  
dékmennyiség folyadéktárolója (10) és a nyomkam-  
ra (4) között a folyadékmennyiséget kivezető adagoló  
egysége van, valamint a nyomkamrában (4) a nyomás  
alatti lévő és az onnan adagolt folyadékmennyiséget ki-  
juttató és azt széporlasztó porlasztó fejjel (22) rendelke-  
zik. A találmányhoz tartozik egy eljárás is adagolt folya-  
dékmennyiség porlasztására hordozható inhalációs készü-  
lékkel, főleg tüdőbe történő inhalálásra, ahol egy gy-  
gyhatású folyadékot egy porlasztó fejen át permatesszpek  
porlasztanak, és a porlasztó fejet a szájnýtás felé irányít-  
ják, és ahol a gy-  
gyhatású folyadékot egy előre megha-



1. ábra

A leírás terjedelme 20 oldal (ezen belül 7 lap ábra)

HU 216 121 B